

REMARKS

I. Status Summary

Claims 1-23 are pending in the present application. Claims 1 and 11 have been amended. Therefore, upon entry of this Amendment, Claims 1-23 will be pending. No new matter has been introduced by the present amendment. Reconsideration of the application as amended and based on the arguments set forth hereinbelow is respectfully requested.

The Examiner indicated that the article titled "Combined Acoustic Echo Control and Noise Reduction for Hand-Free Telephony", S. Gustafsson et al. (Signal Processing 64 (1998), was not received. Applicant has included herewith a copy of the article.

II. Specification

The abstract of the disclosure is objected to because it contains "Fig. 3". (Official Action, page 2.) The phrase "Fig. 3" at the last line of the Abstract has been deleted. Therefore, applicant respectfully submits that the objection to the abstract of the disclosure should be withdrawn.

III. Claim Rejections Under 35 U.S.C. § 102

Claims 1, 2, 4, 5, 11, 12, 15-20, 22, and 23 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,933,495 to Oh (hereinafter, "Oh"). This rejection is respectfully traversed.

Regarding Claim 1, the Examiner contended that Oh teaches a device at Figure 2 for subband noise suppression in telephone devices using a subband adaptive filter

216. (Official Action, page 3.) The Examiner stated that Oh also teaches a control circuit for adjusting filter coefficients operating in the subband and synthesis filter 234 transforms the subband reduced-noise signal into a full-band signal at Figures 2 and 3, and column 4, lines 9-67 of Oh. (Official Action, page 3.)

Upon careful consideration and review of Oh, applicant respectfully submits that Oh does not disclose each and every element of the presently claimed subject matter and therefore does not anticipate the presently claimed subject matter. Claim 1 recites a device for suppressing noise in telephone equipment. Further, Claim 1 recites an additional filter with a short propagation time being arranged in the transmission path of the telephone equipment. Claim 1 has been amended to recite that the additional filter includes adjustable coefficients and a control circuit for adjusting the coefficients. The additional filter operates in the full band while the control circuit for adjusting the coefficients operates in the subband. Applicant respectfully submits that Oh does not disclose these features required by amended Claim 1.

According to the Examiner, Figure 2 of Oh teaches adaptive filter 216 including a control circuit for adjusting the filter coefficients operating in the subband and synthesis filter 234 for transforming the subband reduced-noise signal into a full-band signal. (Official Action, page 3.) Referring to Figure 2 of Oh, adaptive filter 216 operates in a subband. Adaptive filter 216 operates similarly to adaptive filter 116, which is described as operating in the subband. (Oh, column 1, lines 59-63, and column 4, lines 22-25.) In addition, Oh teaches that the coefficients of adaptive filter 116 are adjusted to provide acoustic echo cancellation. (Oh, column 2, lines 2-4.) The coefficients are provided via line 228 to adaptive filter 216 in an acoustic echo

canceller block 210. (Oh, Figure 2.) Thus, Oh teaches that filtering occurs in the subband. In marked contrast, Claim 1 recites that the additional filter operates in the full band. For these reasons, Oh does not teach each and every feature of Claim 1 and, thus, cannot anticipate the claim.

Claims 2, 4, and 5 depend from Claim 1. Therefore, claims 2, 4, and 5 include the features of Claim 1. Thus, the comments presented below relating to amended Claim 1 apply equally to claims 2, 4, and 5. For the same reasons provided for Claim 1, it is respectfully submitted that Oh does not anticipate Claims 2, 4, and 5.

The Examiner stated that Claim 11 is similar to Claim 1 and rejected for the same reasons. Claim 11 has been amended to place the claim in better method claim format. Claim 11 recites a method for noise suppression in the telephone equipment. Claim 11 has been amended to recite a step for filtering the transmitted signal from the telephone equipment with a short propagation time. In addition, Claim 11 has been amended to recite a step for controlling the filtering of step (a) with adjustable coefficients. Further, Claim 11 recites that the filtering is carried out in the full band, while the determination of the coefficients is carried out in the subband. Applicant respectfully submits that Oh does not disclose these features recited by amended Claim 11.

As previously stated, Oh teaches adaptive filter 216 operating in a subband within block 210. Further, Oh teaches that the coefficients of adaptive filter are provided via line 228 to adaptive filter 216 in block 210. Oh also teaches that block 210 operates in the subband, not the fullband. Thus, Oh teaches that filtering occurs in the subband. In marked contrast, Claim 11 recites that the filtering is carried out in

the full band while the determination of the coefficients is carried out in the subband. For these reasons, Oh does not teach each and every feature of Claim 11 and, thus, cannot anticipate the claim.

Claims 12, 15-20, 22, and 23 depend from Claim 11. Therefore, Claims 12-23 include the features of Claim 11. Thus, the comments presented below relating to amended Claim 11 apply equally to claims 12-23. For the same reasons provided for Claim 11, it is respectfully submitted that Oh does not anticipate Claims 12-23.

For the all of the reasons provided above, applicant respectfully requests that the rejections of Claims 1, 2, 4, 5, 11-12, 15-20, 22 and 23 under 35 U.S.C. §102(e) be withdrawn and the claims allowed at this time.

IV. Claim Rejections Under 35 U.S.C. § 103

Claims 6-9 and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Oh, as applied to Claims 5 and 20, and further in view of U.S. Patent No. 5,757,937 to Itoh et al. (hereinafter, "Itoh"). In addition, Claims 3, 10, 13, and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Oh as applied to Claims 1 and 11. These rejections are respectfully traversed.

As previously stated, Oh fails to teach each and every element recited by Claim 1. In addition, applicant respectfully submits that Oh fails to suggest each and every element recited by Claim 1. Itoh fails to overcome the significant shortcomings of Itoh to disclose or suggest the features of amended Claim 1.

Itoh is directed to an acoustic noise suppressor which suppresses signals other than speech signals or the like. (Itoh, column 1, lines 4-8.) In addition, Itoh teaches a

noise suppressor including an analysis/discrimination part 20. (Itoh, column 4, lines 51-54.) Part 20 comprises an LPC analysis part 22, an autocorrelation analysis part 23, a maximum value detecting part 24 and a speech/non-speech identification part 25. (Itoh, column 4, lines 55-58.) Further, Itoh teaches that part 30 includes a psychoacoustically weighted substratum part 34 for multiplying a noise spectrum $S_n(f)$ by a psychoacoustic weighting coefficient $W(f)$ and subtracting the psychoacoustically weighted noise spectrum from spectrum $S(f)$ provided from a frequency analysis part 31. (Itoh, column 5, lines 8-13.) Nowhere does Itoh disclose or suggest a filter operating in a full band while a control circuit for adjusting the coefficient of the filter operating in a subband. Therefore, for these reasons, Claim 1 is believed to be patentably distinguished over the combination of Oh and Itoh because the references do not disclose or suggest the presently claimed subject matter.

Claims 3 and 6-10 depend from Claim 1. Therefore, Claims 3 and 6-10 include the features of Claim 1. Thus, the comments presented below relating to Claim 1 apply equally to Claims 3 and 6-10. For these reasons, Claims 3 and 6-10 are believed to be patentably distinguished over the combination of Oh and Itoh because the references do not disclose or suggest the presently claimed subject matter.

As previously stated, Oh fails to teach each and every element recited by Claim 11. In addition, applicant respectfully submits that Oh fails to suggest each and every element recited by Claim 11. Itoh fails to overcome the significant shortcomings of Itoh to disclose or suggest the features of amended Claim 11.

As previously stated, Itoh is directed to an acoustic noise suppressor which suppresses signals other than speech signals or the like. In addition, Itoh teaches a

noise suppressor including an analysis/discrimination part 20. Nowhere does Itoh disclose or suggest a filtering is carried out in the full band while the determination of the coefficients is carried out in the subband. Therefore, for these reasons, Claim 11 is believed to be patentably distinguished over the combination of Oh and Itoh because the references do not disclose or suggest the presently claimed subject matter.

Claims 13, 14, and 21 depend from Claim 11. Therefore, Claims 13, 14, and 21 include the features of Claim 11. Thus, the comments presented below relating to Claim 11 apply equally to Claims 13, 14, and 21. For these reasons, Claims 13, 14, and 21 are believed to be patentably distinguished over the combination of Oh and Itoh because the references do not disclose or suggest the presently claimed subject matter.

Applicant respectfully submits that the teachings of Oh and Itoh, either alone or in combination, do not teach or suggest each and every feature of the present subject matter, and therefore that Claims 3, 6-10, 13, 14, and 21 are not obvious in view of the Oh and Itoh. Applicant, therefore, respectfully requests that the rejection of Claims 3, 6-10, 13, 14, and 21 under 35 U.S.C. § 103(a) be withdrawn and the claims allowed at this time.

CONCLUSION

In light of the above amendments and remarks, it is respectfully submitted that the present application is now in proper condition for allowance, and an early notice to such effect is earnestly solicited.

If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters and avoid the issuance of another Official Action.

DEPOSIT ACCOUNT

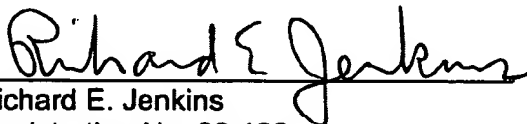
The Commissioner is hereby authorized to charge any fees associated with the filing of this correspondence to Deposit Account No. 50-0426.

Respectfully submitted,

JENKINS, WILSON & TAYLOR, P.A.

Date: December 21, 2004

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